Determinants of Brazilian Outward Foreign Direct Investment (OFDI): A Host Country Perspective

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Abstract: Several empirical studies have tried to discuss the effects of macroeconomic factors on the FDI, in the home and/or in the host markets. The aim of this paper is to address the determinants of outward FDI from Brazil. Using a panel data model, we tested the effects of economic, cultural and institutional variables on the Brazilian OFDI from a host country perspective. The results show that Brazilian OFDI is influenced by economic performance, cultural distance and by the regulatory quality of the host country, suggesting a different pattern of internationalization than the model of MNCs from Asian countries.
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1. Introduction

In the literature of International Business (IB), the topic of Foreign Direct Investment has been largely discussed. One of the main issues was related to address the determinant factors of FDI from developed countries, and more specifically, what are the factors that explain the attractiveness of emerging economies for Multinational Companies (MNCs).

The growing internationalization of MNCs from emerging economies (EMNCs) can be described as a major trend in the current world economic scenario. On the last two decades, the Foreign Direct Investment (FDI) outflows from such economies grew at a higher year average than those from developed economies, while the FDI outward stocks from EMNCs represents over 15% from the world total, whereas this participation was lower than 10% in the mid-1990s. Several authors point out that this tendency should be confirmed on the next coming years. Cheaper access to capital, successful business model and sizeable assets will lead EMNCs to challenge even more some traditional firms from developed economies (Santiso, 2007). Recent financial results enhanced the FDI stocks level from EMNCs and turned them less dependent upon banking loans to finance their foreign investments projects (UNCTAD, 2008), and the stocks and assets depreciation by developed countries MNCs due to the financial crisis will result on higher world share for the outward FDI stocks by emerging economies (ECLAC, 2009).

Most part of the FDI from emerging countries, over 62%, is originated from Asia, especially from China and the Four Asian Tigers. Latin America and the Eastern Europe are the two secondary sources of FDI from emerging economies, in the time that both of them represent, together, about 35% of the total FDI stocks from EMNCs, being Brazil, Mexico, Chile the main origin countries from these areas. Africa’s outward FDI stocks represent less than 3% from the developing countries total, and South Africa alone is the major FDI source within the continent.

The Brazilian OFDI has been relatively insignificant during all the 1990s. Only in the second half of the 1990s, due to economic and institutional reforms in Brazil, we could register a tendency to a growing process of internationalization of Brazilian firms, which stimulate the outward FDI, as a strategy of entering and expanding business in foreign markets. This process has particularly increased after 2002, corresponding on a recovering of the Brazilian economy from the crisis of 2001, and driven by a relative long cycle of economic growth in developed and developing countries.

Thus, Brazil becomes together with China and India, not only the main host countries of world FDI, but also the leading home countries of outward FDI among developing countries (see table 1 below). Nowadays, Brazil, India and China represent not only the largest host countries of FDI inflows among developing countries, but also they concentrate a significant percentage of FDI outflows. Their participation in the FDI outflows among developing countries represented in 2008 more than 30%, and in terms of inward stock, around 17% (UNCTAD, 2009).

Previous empirical studies on the determinants of FDI have emphasized the role of economic environment and liberalization policies in the host country to attract foreign investment. For more than two decades (Dunning, 2000), the eclectic (or OLI) paradigm has remained the dominant analytical framework for accommodating a variety of operationally testable economic proposals of the determinants of FDI. The role of the eclectic paradigm as a leading conceptual framework for the analysis of determinants of FDI can be understood with respect to two important contributions (Rugman & Verbeke, 2002). A first contribution of this
framework is that the location-specific characteristics that contribute to competitive advantage are recognized to vary for different countries, sectors and firms. A second contribution is that the conceptual framework represents an envelope that allows integrating different perspectives to approach the strategies and the determinant of investments decision of MNCs.

Several studies have been developed to examine the determinants of FDI from emerging economies, using different econometric methods. Most of them have emphasized the impacts of macroeconomic variables on the FDI inflows in the region. Most of the studies have been concentrated to analyze the determinant factors of FDI from developed countries, with special emphasis on the role of economic stability and the institutional changes in the East Europe and developing countries as key factors that explain the growing flows of FDI in these regions. However, very few attempts have been made to discuss the determinant factors of FDI from emerging economies (Buckley et al., 2007; Cheng and Ma, 2007; Kolstad and Wiig, 2009; Fung et al., 2009), mostly discussing the cases of Asian MNCs (China and India). To fill this gap, this paper addresses the case of Brazil, focusing on the discussion of two main questions. How do economic performances in the host countries affect FDI from emerging economies? Do Institutions and cultural distance in the host country matter for investment projects of EMNCs?

Thus, the aim of this paper is to address the determinants of FDI from Brazil. More specifically to address how economic performance, institutional environment and cultural distance in the host countries affect FDI patterns of Brazilian MNCs.

2. Literature review

In the literature of International Business and Management several models, which help us to understand the internationalization processes and/or behavior of international marketers have been provided (Dunning, 2000; Johanson and Vahlne, 1977; Johanson and Widersheim-Paul, 1975). In principle, each of them can be seen as complementary rather than competing with each other.

Firstly, Hymer (1960) argued that producing overseas was costly for the firm, due to the great amount of uncertainty regarding this operation, which is the reason why a foreign firm would have an intrinsic disadvantage over local firms. Therefore, MNCs should explore market and product imperfections abroad through an owned competitive advantage, related to its intangible assets. After Hymer, different approaches have contributed to the debate about the development of MNCs, like the theory of the product life cycle of Vernon (1966), the transaction cost theory (Williamson, 1975), and the Internalization Theory (Buckley and Casson, 1976; Rugman, 1981).

Dunning (1988) combined the different aspects from the international business’ theories in one single framework, which were denoted as the Eclectic Paradigm. The principal hypothesis on which the eclectic paradigm of international production is predicated is that the level and structure of firm’s foreign value-adding activities will depend on four conditions being satisfied. These are (Dunning and Lundan, 2008, p.99-100):

1. The extent to which it possesses unique and sustainable ownership-specific (O) advantages vis-à-vis firms of other nationalities, in the servicing of particular markets or groups of markets. (2) Assuming that condition (1) is satisfied, the extent to which the enterprises perceive it to be in its interest to add to its O advantages rather than to sell them, or their right of use, to independent foreign firms. These advantages are called market internalisation (I) advantages. (3) Assuming that, conditions (1) and (2) are satisfied, the extent to which the global interests of the enterprises are served by creating, accessing or utilizing, its O advantages in a foreign location. (4) Given the configuration of the ownership, location and internalisation (OLI) advantages facing a particular firm, the extent to which a
firm believes that foreign production is consistent with the long term objectives of its stakeholders and institutions underpinning its managerial and organizational strategy.

It is important to mention that while the first, third and fourth conditions are firm-specific determinants of FDI, the second is location-specific and has a crucial influence on a host country’s inflows of FDI. Based on the different types of advantages, the conceptual framework allows the identification of four different types of FDI: resource seeking, market seeking, efficiency seeking, and strategic asset seeking: (i) Resource seeking FDI that occurs when firms identify specific host country locations as attractive natural resources, e.g. minerals, agricultural products, unskilled labor. (ii) Market seeking FDI that more designed to satisfy a particular foreign market. It has an immediate import substitution effect, but often also leads to trade creation (Rugman and Verbeke, 2001). (iii) Efficiency seeking FDI that designed to promote a more efficient division of labor or specialization of existing portfolio of foreign and domestic assets by MNCs. This type of FDI reflects a rationalization of MNCs operations and a tendency to specialization of affiliates in its internal network (Rugman and Verbeke, 2001). It is important to observe that this type of FDI is usually sequential to resource and market seeking FDI (Dunning, 2000), and trade creating at the firm level. (iv) Strategic asset seeking FDI that designed to protect or augment the existing Ownership specific advantages of the investing firm (Dunning, 2000). In this way, new plants and acquisitions or joint ventures secure assets of foreign firms. The objective of this type of strategy is to create synergies with the existing pool of assets through common ownership (Rugman and Verbeke, 2001).

2.1 EMNCs in the International Business Literature

Due to the growing academic and economic importance of MNCs from developing countries, several authors attempted to document the internationalization processes of such firms. Results from these studies unveil that an incremental behavior is also a feature from the internationalization of emerging markets’ MNCs (EMNCs), and the psychic distance also affects the market selection process, even though it does not determine alone, for example, the foreign direct investment destination (Li, 2003).

Regarding the extent to which a firm will depend mostly on ownership, internalization and locational advantages to internationalize its activities, Li (2003), and Lee and Slater (2007) suggest an adaptation for the specific case of EMNCs; this is because these firms often end up developing ownership advantages on foreign markets, mostly in developed countries, due to better access of technology and knowledge. Cuervo-Cazurra (2007) classified the MNCs from emerging countries as those that seek to develop ownership advantages abroad and those that aim on exploring abroad the advantages acquired in their domestic market. Those firms that desire to develop new capabilities abroad should choose to establish a foreign subsidiary on developed economies, if they seek access to higher technology, or on developing economies, if they aim on obtaining access to a country’s abundant resources.

To overcome the liability of foreignness, measured as the cost of doing business abroad (Zaheer, 1995) and their disadvantage as latecomers, some MNCs can act as a springboard to address firm-specific disadvantages via international acquisitions of new assets. The literature on International Business (IB) showed that foreign firms face different barriers that exist because of different levels of geographic distance, psychological, cultural and institutional relationship between the country of origin and host countries of their investments (Zaheer, 1995; Nachum, 2003), the barriers are often called "Liability of foreignness" (LOF). According to Madhok (2010), LOF occurs for several reasons. First, because foreign companies have disadvantages related to the low level of knowledge about host markets of their investments. Secondly, companies must adapt their ownership advantages to different cultural and institutional environments, which should generate
different costs and barriers that domestic firms do not have; and, finally, foreign companies need to establish legitimacy and to be accepted into the host country.

On the other hand, the following features regarding the internationalization patterns between developed and emerging economies have been pointed out in the literature: (i) EMNCs are based in countries with low average income per capita, and presenting weak institutional infrastructure; (ii) EMNCs present limited ownership advantages, such as technology, brand when developing international operations; (iii) They are late comers (Ramamurti and Singh, 2009); following apparently different paths in terms of countries of destination of their investments. They use to invest in other emerging countries, but also in developed countries (Sirkin et al., 2008), acquiring other companies as part of their internationalization strategy (UNCTAD, 2006; Gubbi et al., 2010).

Although there are different standards between MNCs, studies have shown that both emerging MNCs and MNCs from advanced countries seek to develop complementary strategies to expand their ownership advantages (Hayashi and Serapio, 2006). They used to follow an incremental strategy of internationalization, based on the psychic distance as determinant factor for market selection in the early stages, in particular, which means, that the process of gradually increasing commitment would still be expected to be the norm (Dunning and Lundan, 2008).

2.2 Determinants of OFDI from emerging economies

Due to the growing academic and economic importance of EMNCs, several authors attempted to discuss the role of economic stability, institutional changes and culture as key factors that explain the FDI performance of EMNCs.

Economic performance determinants

When it comes on how a country’s economic performance may boost the internationalization of local firms or attracts OFDI, authors used different proxies and indicators. Most of the indicators are related to the size and growth of the economy (GDP and GDP per capita), the macroeconomic stability (Inflation rate) and trade openness (Trade Flows between home and host country and Exchange rate).

The GDP is often referred as an indicator of the size and growth potential of a country. Several authors have found a significant positive impact of GDP over the outward FDI (Kyrkilis and Pantelidis, 2003,  2005; Frenkel et al. (2004), and Amal, Raboch and Tomio (2009). Several authors have also tested the GDP effect on OFDI from developing countries. Cheng and Ma (2007) pointed out to a positive impact of the host country GDP on the Chinese FDI. Subramanian et al. (2010) studied FDI outflows from India. They found out that acquisitions have been the predominant mode of entry for Indian firms investing abroad, and seeking new markets the primary intent of investment. Fung et al. (2009), comparing the case of FDI from China to other Asian MNCs, show that the economic performance of the host county was statistically significant. Different empirical studies, using different econometric models, suggest a positive correlation between GDP and FDI, which suggest the predominance of the market-seeking strategy by MNCs from emerging economies.

Still, there have been some other studies contradicting such findings, stating that the GDP’s effects are whether positive but not significant (Bae and Hwang, 1997; Faria and Mauro, 2009) or negative (Thomas and Grosse, 2001). As for Faria and Mauro (2009), the GDP per capita was more significant than the total GDP, leading the authors to understand the per capita income as a better proxy for a nation’s aggregated ownership advantages level due to the reflex of demand structures of market, since a higher personal income represents higher demand levels from consumers, which lead firms to offer improved products and services.
Other macroeconomic variables, such as inflation and interest rates, are relevant indicators from an economy’s stability. High levels for such indexes hinder the attraction of FDI of a country (Thomas and Grosse, 2001), meaning that higher inflation and/or interest rates may reflect a higher tendency of inflation and, therefore, a higher climate of macroeconomic instability, which suggest a negative business climate.

Trade flows of a nation may be directly related to the local exchange rate, not only on the effects of the second over the first one, but mostly due to similar effects that both have over the outward FDI. A gradualist model like Uppsala mentions that MNCs must be first an exporter in order to achieve such status. That stated, it is possible to conclude that the higher the trade flows between a country and the rest of the world, the more higher the FDI flows among between them, which leads to a positive impact of the economic openness of a country over its FDI, but there are theoretical track pointing out to the other direction, in which FDI replaces trade (Lim and Moon, 2001). Some authors explain this relation in the way that the positive correlation between the two variables pointed out to a strategy of efficiency-seeking and resource-seeking FDI projects, in which the FDI creates an intra-firm trade, mostly between raw materials, capital goods and finished products manufactures under more competitive costs. However, a negative relation between trade and FDI means that the MNC is more engaged in market-seeking projects, since the FDI replaces already-existing exports (Swenson, 2004; Seo and Suh, 2006; Amal and Raboch, 2010).

The impacts of the exchange rates also present a conflicting effect in the literature, regarding its effects to the FDI’s nature as well. In this case, firms may be more or less prone to perform FDI depending on how the exchange rates affect their goals. Chen, Rau and Lin (2006) argue that firms performing efficiency-seeking projects may opt to invest more abroad in the case of a valued domestic currency, in order to reduce production costs. On the other hand, firms willing to conduce market-seeking projects may rather invest overseas when the domestic currency is unvalued, since foreign markets will turn higher profits possible. After all that stated, it is reasonable to accept that the relation between outward FDI and economic openness is dependent upon the FDI’s nature.

Based on the above literature review, the first hypothesis is related to the effect of the economic performance of the host country on Brazilian FDI.

**Hypothesis H.1**: Brazilian OFDI is positively correlated to the economic performance of the host country, expressed in term of GDP, macroeconomic stability, and trade openness. A positive performance of the host country is related, therefore, to a large or growing GDP, to a higher GDP per capita, to a lower inflation rate, and to trade open economy. The higher the economic performance of the host country, the higher FDI flows to that country, suggesting a market seeking oriented strategy of Brazilian MNCs.

Thus, according to the different dimensions of the economic performance, we will test the following sub-hypotheses:

- **H.1.1** the larger the GDP of the host country, the higher FDI inflows from Brazil.
- **H.1.2** The higher the GDP per capita in the host country, the higher FDI inflows from Brazil.
- **H.1.3** The higher the inflation rate in the host country, the lower the flows of FDI from Brazil to the country.
- **H.1.4** the higher the trade flows between Brazil and a country, the higher the FDI flows from Brazil to the country.
- **H.1.5** the lower the exchange rate (over evaluated currency) of Brazil, the higher the flows of Brazilian FDI to the country.

**Culture effects**

The great amount of uncertainty around doing business across borders is largely represented by the cultural differences between diverse markets (Doole and Lowe, 2008). The psychic distance proposed by the Uppsala’s Model is commonly referred as factor that inhibits the internationalization of firms, leading them to choose to act on markets more similar to its origin market. Culture is an element that answers for a large part to what the concept of psychic distance really is, since regards languages, religion, local behavior and preferences. Authors have estimated the effects of culture on international businesses using different indicators. Most of them are related to the cultural distance calculated based on the Hofsted dimensions (Kogut & Sengh, 1998), or geographical distance, which is a physical measure mostly used by economists to capture the determinants of foreign trade.

It seems that cultural distance and FDI have a positive correlation, as already mentioned by Thomas and Grosse (2001), which means that the higher the cultural distance between home and host country, the more likely MNCs will enter into foreign markets through FDI. However, some other studies have questioned how relevant the influence of culture really is, since this factor may affect more trade between nations than FDI flows, due to the fact that MNCs are usually largely international experienced firms focusing on other advantages besides the cultural proximity (Li, 2003; Pangarkar and Lim, 2003; Andersson, 2004). Several empirical studies found strong support for a negative correlation between outward FDI from EMNCs and the distance from the home market (Cheng and Ma, 2007; Fung, Garcia-Herrera, Sui, 2009), and that outward FDI is positively correlated to cultural proximity between home and host country (like the Chinese case; Buckley, et al, 2007).

The cultural distance is measured by the index of Kogut and Singh (1988), based on differences in scores for each of the four Hofstede's cultural dimensions (uncertainty avoidance, individualism, masculinity and power distance, Hofstede, 1980) between the country of origin of foreign direct investment and host country of FDI, according to the following equation:

\[ CD = \sum_{i=1}^{4} \left( \frac{(u_i - v_i)^2}{V_i} \right) / 4 \]

Where \( I \) is the index for one of the four dimensions \((i)\) for the host country \((j)\) and \((u)\) for the home country, which is Brazil in this case. \( V \) stands for the variance of each dimension of the index. Thus CD shows the cultural difference or distance between Brazil and the host country of Brazilian FDI. The higher the score is, the higher the cultural differences between the two countries.

This index is calculated by subtracting the scores of the country (Brazil) in each of the four dimensions, the scores of the recipient country of FDI. The square of the resulting difference is then divided by the variance of the scores for each dimension. Finally, the resulting values in each dimension are summed and divided by four. The scores were taken from the updated website Hofsted (www.geet-hofstede.com).

However, the cultural effect can also be measured by the geographical distance, which is operationalized using the great circle distance between the capital of the country (Brazil) and the capitals of the host countries of Brazilian OFDO.

According to the above literature, the second hypothesis can be expresses as follows:

**Hypothesis H.2:**
The empirical studies are not conclusive about the effects of the cultural distance on the OFDI, and less then when regarding the case of emerging MNCs. However, we do consider that, in the case of emerging MNCs, due to their lower international experience and limited ownership advantages, like the Brazilian ones, the correlation between Cultural Distance and
FDI is positive, only when the host country presents better institutional indicators. Thus, we will test two sub-hypotheses about the effect of culture on OFDI from Brazil:

H2.1 The higher the cultural distance between home and host country, the higher OFDI from Brazil.
H.2.2 The higher the geographical distance between home and host country, the higher Brazilian OFDI.

**Institutional determinants**

The relevance of institutions in the international business literature started being noticed when the theorists perceived that only economic conditions alone could not fully explain the competitiveness of a nation’s industry (Amal et al., 2009). Peng et al. (2008) consider the institutions as the third leg in the competitive tripod, in the way that a firm competitiveness level is not only a matter of resources possessed and industry-specific characteristics, but also a matter from the institutional scenario in its home market, which has an influence over local business practices. The institution’s role is related to their ability to improve the markets’ structure efficiency by lessening transaction and information costs and the uncertainty and instability levels (Mudambi and Navarra, 2002; North, 1990). Bevan et al. (2004) understand that both informal institutions and government arrangements should affect corporate strategies.

Nevertheless, it is important to underline that the role of institutions has also a counter position in the literature, authors like Witt and Lewin (2007) understand that poor institutions may drive local firms to international markets, in order to overcome barriers generated by it. Such situation is named by Luo et al. (2009) as institutional escapism, and the authors also accept that both approaches co-exist, but their effects vary between firms and industries. While recent studies have indeed found some divergent results indeed, the institutions effects are mostly positive over the internationalization of firms from developed countries, but in the case of emerging economies, studies have found opposite correlation (Buckley et al., 2007; Kolstad and Wiig, 2009; Amal and Raboch, 2010).

The effect of the institutional framework was operationalized from the governance indicators made available annually by the World Bank (databank.worldbank.org). The indicators are based on research by Kaufmann, Kraay and Mastruzzi (2009) covering 212 countries and territories and measured six dimensions of governance, which are: Voice and Accountability (VA), Regulatory Quality (RG), Rule of Law (RL), Political Stability of Violence/Terrorism (OS), Government Effectiveness (GE), and Control of Corruption (CC). The authors attributed a score of between -2.5 and +2.5, with higher scores indicating higher levels of quality of governance.

Based on the literature review above, we will test the third hypothesis that considers the effect of institutional quality and governance in the host country on the Brazilian OFDI:

**Hypothesis H.3**: countries with improved institutions and positive governance indicators represent efficient market structure, which may reduce significantly transaction costs and uncertainty. The higher the scores of governance institutional indicators in the host country, the higher the flows of Brazilian FDI to that country, suggesting that Brazilian OFDI are more likely oriented to invest in developed countries, in order to enter into mature markets, and/or to create and enlarge their ownership advantages.

Thus, according to the different dimensions of the institutional environment, expressed by the world governance indicators, we will test the following sub-hypotheses:

H.3.1 The higher the performance of Voice and Accountability in the host country, the higher Brazilian FDI flows to that country.
H.3.2 The higher the regulatory quality in the host country, the higher Brazilian FDI flows to that country.
H.3.3 The higher the rule of Law in the host country, the higher Brazilian FDI flows to that country.
H.3.4 The higher the political stability in the host country, the higher Brazilian FDI flows to that country.
H.3.5 The higher the government effectiveness in the host country, the higher Brazilian FDI flows to that country.
H.3.6 The higher the control of corruption in the host country, the higher Brazilian FDI flows to that country.

3. Empirical Model and estimation

Based on the brief literature review above, the outward FDI from Brazil depends on the economic performance of the host country, on the cultural and geographical distances between home and host country, and on the institutional environment in the host country, according to the equation 1:

\[ OFDI = f(\text{Economic Performance}; \text{Cultural Distance}; \text{Institutional Environment}) \]  

(1)

Based on the hypotheses discussed before, the regression used to test each of the variables takes the following shape (equation 2).

\[
OFDi_{it} = f\left(\frac{\text{GDP}_{i,t}, \text{GDPPC}_{i,t}, \text{INF}_{i,t}, \text{RER}_{i,t}, \text{TRD}_{i,t}, \text{CD}_{i,t}, \text{GD}_{i,t}}{\text{CC}_{i,t}, \text{GE}_{i,t}, \text{PS}_{i,t}, \text{RL}_{i,t}, \text{RO}_{i,t}, \text{VA}_{i,t}, \varepsilon}\right)
\]

(2)

\( \varepsilon \) is the residual error of the equation. All variables are represented by “i”, a host country, and “t”, the time (period). Table 1 presents the main used variables, with the hypothetical signs and the sources of the collected data.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hypotheses</th>
<th>Hypothetical signs</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outward flows of Foreign Direct Investment (OFDI)</td>
<td>Economic Performance Effects</td>
<td>Dependent variable</td>
<td>Brazilian Central Bank- BCB</td>
</tr>
<tr>
<td>Hypothesis H.1</td>
<td>Nominal GDP (GDP)</td>
<td>H.1.1: Economic Performance</td>
<td>+</td>
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<tr>
<td></td>
<td>GDP per capita (GDPPC)</td>
<td>H.1.2 Economic Performance</td>
<td>+</td>
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<tr>
<td></td>
<td>Inflation (INF)</td>
<td>H.1.3 Economic Stability</td>
<td>-</td>
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<tr>
<td></td>
<td>Trade Flows</td>
<td>H.1.4 Trade Openness</td>
<td>+/+</td>
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<tr>
<td></td>
<td>Real Exchange Rate (RER)</td>
<td>H.1.4 Trade Openness</td>
<td>+/+</td>
</tr>
<tr>
<td>Hypothesis H.2</td>
<td>Cultural effects</td>
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<tr>
<td></td>
<td>Cultural Distance (CD)</td>
<td>H.2.1 Culture effects</td>
<td>+/+</td>
</tr>
<tr>
<td></td>
<td>Geographical Distance (GD)</td>
<td>H.2.2 Culture effects</td>
<td>+/+</td>
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<tr>
<td>Hypothesis H.3</td>
<td>Institutional Effects</td>
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<td></td>
<td>Control of Corruption (CC)</td>
<td>H.3.1 Institutional Performance</td>
<td>+</td>
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<tr>
<td></td>
<td>Government Effectiveness (GE)</td>
<td>H.3.2 Institutional Performance</td>
<td>+</td>
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<td></td>
<td>Political Stability &amp; Absence of Violence/Terrorism (PS)</td>
<td>H.3.3 Institutional Performance</td>
<td>+</td>
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<td></td>
<td>Rule of Law (RL)</td>
<td>H.3.4 Institutional Performance</td>
<td>+</td>
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<td></td>
<td>Regulatory Quality (RQ)</td>
<td>H.3.5 Institutional Performance</td>
<td>+</td>
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<tr>
<td></td>
<td>Voice and Accountability (VA)</td>
<td>H.3.6 Institutional Performance</td>
<td>+</td>
</tr>
</tbody>
</table>
Based on country data, we estimated a panel model for Brazil. The dataset comprises eight years (2002-09), and 22 countries, for which we could gather all the data needed to estimate the model, they are: Argentina, Austria, Belgium, Canada, Chile, China, Colombia, Denmark, France, Germany, Holland, Italy, Luxembourg, Mexico, Panama, Peru, Portugal, Spain, Switzerland, United Kingdom, United States, and Uruguay. According to Raj and Baltagi (1992), the panel data technique is used when simultaneously observations in cross sections and time series are taken into account simultaneously. The advantage of the method is to allow a level of specification that helps by the identification of economic model that may offer a tighter control over individual heterogeneity. On the other hand, in reducing the effects of collinearity among the independent variables, the technique of panel enhances the estimator’s efficiency. Table 2 demonstrates the correlation matrix for each dataset.

Table 2: Correlation matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>CD</th>
<th>GD</th>
<th>INF</th>
<th>RER</th>
<th>GDP</th>
<th>GDPPC</th>
<th>TRD</th>
<th>CC</th>
<th>RL</th>
<th>GE</th>
<th>RQ</th>
<th>PS</th>
<th>VA</th>
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<tbody>
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<td>CD</td>
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<tr>
<td>GD</td>
<td>0.53</td>
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<tr>
<td>INF</td>
<td></td>
<td>0.85</td>
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<td>RER</td>
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<td>0.85</td>
<td>1</td>
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<td>GDP</td>
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<td>0.85</td>
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<tr>
<td>GDPPC</td>
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The analysis of the correlation matrix shows that the highest correlation occurs between the institutional variables (WGI), with values exceeding 0.8, which may point out to the existence of high risks of multicollinearity problems. The variable trade has also presented some high correlation level with WGI variables, however, the registered values are still on a lower level than 0.8, which allows us to keep it in the model. To avoid multicollinearity problems, we decide to run different models using the WGI variables separately.

The correlation matrix shows also some important results for the understanding of the relationships between the variables. First, the matrix registered a high correlation between GDP and GDP per capita, which means, that mostly Brazilian OFDI invest in developed countries. Second, cultural distance and geographical distances registered relatively high correlation, which suggests that countries with higher cultural distance are also those who are more geographically distant from Brazil. And, finally, cultural and geographical distances have also registered relatively high correlation, which may suggest, that the distant host countries are more likely represented by countries with higher indicators of governance and institutional quality.
Before discussing the results of the model’s estimation, some preliminary issues have to be addressed. The panel was estimated through random-effects model based on the outcomes of the Hausman test. This indicates that the null hypothesis of consistent estimators for the random-effects model cannot be rejected. Meanwhile, the alternative hypothesis of this test is rejected, so the estimation of the panel model thru fixed-effects is inconsistent.

On the other hand, due to multicollinearity among the institutional variables, we choose to run different models (I to VI), for each WGI variables. After choosing the most appropriate method, the equations can be regressed to perform the model’s tests. Table 3 shows the final results for six models, using each different institutional variable.

Table 3: Model estimation Brazil

<table>
<thead>
<tr>
<th>Regression</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
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<td>Constant</td>
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<td>248.46</td>
<td>58.01</td>
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<tr>
<td>CD</td>
<td>774.44**</td>
<td>815.12**</td>
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<td>GD</td>
<td>0.11**</td>
<td>0.09*</td>
<td>0.07*</td>
<td>0.08*</td>
<td>0.06*</td>
<td>0.12*</td>
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<tr>
<td>INF</td>
<td>183.60***</td>
<td>181.57***</td>
<td>173.13***</td>
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<td>163.49***</td>
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<tr>
<td>RER</td>
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<td>-0.33***</td>
<td>-0.41***</td>
<td>-0.42***</td>
<td>-0.29**</td>
<td>-0.30*</td>
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<tr>
<td>GDP</td>
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<td>0.00***</td>
<td>0.00***</td>
<td>0.00***</td>
<td>0.00***</td>
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<tr>
<td>GDPPC</td>
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<td>0.01</td>
<td>0.01</td>
<td>0.02**</td>
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<tr>
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<td>389.26*</td>
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R² 0.35 0.34 0.34 0.34 0.34 0.34
Adjusted R² 0.29 0.28 0.28 0.28 0.27 0.28
F-statistic 5.76*** 5.53*** 5.56*** 5.54*** 5.39*** 5.51***
Durbin-Watson 0.48 0.47 0.47 0.47 0.46 0.47
Likelihood test 3.75*** 24.71*** 20.14*** 3.59*** 23.00*** 3.61***
Hausman test 25.66*** 3.74*** 3.60*** 22.53*** 3.48*** 22.39***

Notes: * Significant at 10%. ** Significant at 5%. *** Significant at 1%. P-value between brackets. Method used for every estimation is Panel EGLS (Period weights), with linear estimation after one-step weighting matrix and white diagonal standard errors & covariance (no degrees of freedom correction).

Although the values of the coefficient of determination R² are relatively close, the results of the regression show that the model “I” that uses the institutional variable, control of corruption has the best predictive power than others, and this assessment is based on the analysis of the coefficient of determination R², which registered a value of 0.35, higher than all the others. The value of the F-statistic indicates also that the model “I” has better predictive capability (5.76, with p<0.01). Thus, the coefficient of determination shows that the model can explain 35% of the variance in performance of Brazilian FDI abroad.

According to the results of the Model “I”, it seems that Brazilian OFDI are positively correlated to the size of the host country, measured by the GDP. The higher the GDP of the host country is, the higher the flows of Brazilian FDI to that country are. The GDP was statistically significant at 1%, which means that the investments of Brazilian MNCs are more
concentrated in large economies. The results give some support for the market-seeking hypothesis, suggesting that the investments of Brazilian MNCs are more likely oriented to attend a growing demand in the host markets.

The results of the model estimation show also that Brazilian OFDI seem to be more performed in countries with higher level of economic openness, measured by a proxy of the flows of trade between the host and home countries. The variable was statistically significant at 1%, and with a positive sign, which means, the higher the openness level of the host country, the higher the FDI from Brazil to the host country. The result suggests that a higher integrated economy in the world market will stimulate positively inflows of FDI from Brazil oriented to use the competitive advantages of global value chains, and using products from providers of different origins. This result may suggest two main conclusions. The FDI strategy and export strategy of Brazilian MNCs are complementary. It means that FDI, in this case, is generating trade between the host and home countries, or between host country and the rest of the world. The second conclusion may suggest a gradual process of approaching foreign markets. The higher the trade between Brazil and other country, the more likely Brazilian MNCs invest in more advanced strategies of growth in those markets due to the accumulated knowledge, and the already existing business relationships between the two countries. And, finally, there is a negative correlation between OFDI and the Real Exchange Rate, which means that the over evaluated the Brazilian currency is, the higher the outward FDI. All the three variables (GDP, RER, TRD) were statistically significant at 1%, and presented the coefficient signs according to the above discussed hypotheses. Thus, the results confirm the hypothesis 1, suggesting that Brazilian OFDI are positively correlated to the economic performance of the host country, pointing out to a more market seeking strategy of Brazilian MNCs.

The model estimation has also shown that cultural distance and geographical distance were statistically significant at 5%, and have presented a positive correlation to the Brazilian OFDI. Thus, according to the results of Model I, it seems that Brazilian OFDI are more likely performed in geographically distant markets, and also more culturally distant markets, which means that the more distant the host country is, the more likely Brazilian MNCs invest in more advanced strategies of growth in those markets due to the accumulated knowledge, and the already existing business relationships between the two countries. And, finally, there is a negative correlation between OFDI and the Real Exchange Rate, which means that the over evaluated the Brazilian currency is, the higher the outward FDI. All the three variables (GDP, RER, TRD) were statistically significant at 1%, and presented the coefficient signs according to the above discussed hypotheses. Thus, the results confirm the hypothesis 1, suggesting that Brazilian OFDI are positively correlated to the economic performance of the host country, pointing out to a more market seeking strategy of Brazilian MNCs.

The correlation matrix have shows that Cultural and geographical distances and institutional indicators are high correlated, suggesting that the involvement of Brazilian MNCs in distant countries is also related to in which extent to host country presents or not improved institutional environment, in terms of business climate, political stability, existing rules of laws and government effectiveness. A social and political stable country, presenting conditions of transparency and clear rules of games will also reduce the risks and uncertainty related to cross-border add value transactions, and, therefore, reduce the impacts of the liability of foreignness.

The institutional variables were statistically significant in four of the six estimated models. Control of Corruption, Government Effectiveness, Rule of Law, and Voice and Accountability were statistically significant at 5% and 10%, and with positive coefficient signs, pointing out to a positive correlation to the Brazilian OFDI. It means that a positive
institutional environment affects positively the investment strategy of MNCs from Brazil, since a tighter regulation leads firms to reduce uncertainty and transaction costs, turning them more competitive on foreign markets. However, how can we establish the relation between the regional strategy of Brazilian FDI and the positive effects of institutional variables? This result may suggest that the growth of Brazilian FDI is more based in countries with improved institutional environments, and confirms the third hypothesis of the impact of institutional environment in the host countries on the Brazilian outward FDI.

Other results of the models show that the inflation was statistically significant at 1%, however presenting a positive correlation. Such result is not in line with the theory, which assumes that a lower inflation means a stable macroeconomic environment, which represents a driver for new investments. The GDP per capita has presented a positive coefficient sign, pointing out to positive correlation to Brazilian OFDI and suggesting that Brazilian MNCs are more prompt to invest in high income country to give support for their market seeking strategy, however, the variable was not statistically significant in all the six estimated models. Also two of the world governance indicators, regulation quality and political stability, even they have presented the expected positive signs, they were not statistically significant.

4. Conclusion

In this paper, we have attempted to address the determinants of OFDI from Brazil by estimating a panel data model for 22 countries, over the period 2002-2009. Our empirical analysis reveals that economic performance of the host country is a significant factor to be considered in the internationalization strategy of EMNCs. The economic performance of the host country is connected not only to the size and to growth of the economy, but more specifically to its trade openness, and that MNCs are more prompt to develop complementary strategy of entering into foreign markets. On the other hand, the estimation of the model, different from previous empirical studies (Chang and Ma, 2007; Beckley et al., 2007; Fung et al., 2009), has shown that cultural proximity doesn’t matter for the internationalization of Brazilian MNCs. And, finally, unlike previous studies (Buckley et al., 2007; Kolstad and Wiig, 2009), we found a positive correlation between institutional environment in the host countries and Brazilian OFDI, suggesting a different pattern of investment by Brazilian MNCs from other Asian MNCs (China, in particular).

What are the main lessons that we may draw from the case of Brazil for the understanding of the internationalization patterns of emerging MNCs? The estimation of the models has shown that OFDI is highly correlated to economic performance of the host countries, suggesting a more market-seeking strategy, unlike the results of some empirical studies about Asian MNCs, which have pointed to a more efficiency and resource seeking strategies. In this case, we may suggest that the FDI strategy of Brazilian MNCs is less oriented to create capabilities and ownership advantages in the host markets, and more focused on opportunities of growth. The other characteristic of the Brazilian MNCs, suggested by the results of the panel model, is that institutions do matter. This finding may suggest, from one side, that Brazilian MNCs, due to their limited global experiences and knowledge about foreign markets, they prefer, when it comes to invest in distant countries, to choose those ones, with a positive institutional environment. This feature of the Brazilian MNCs is not in line with the findings of the Asian MNCs.

The results of the estimation model present some positive and negative implications. Firstly, the existing theories of International Business can explain many of the differences in the patterns of emerging MNCs. More specifically, the eclectic paradigm and institutional theories have shown to be relevant in terms of explaining the role of the host potential market, and how Institutions affect internationalization strategies. On the other hand, due to the very short time series of the Brazilian OFDI, the results of the estimation models are more
suggestive, and pointing more to tendency of patterns, and not to differences among firms, which is a important limitation of this study.

For further investigations, we suggest to run more empirical analysis based on firm data, but also running comparative studies among MNCs from different emerging economies.

References:


